IMPACT OF WTO ON SPICES; WITH SPECIAL REFERENCE TO PEPPER AND CARDAMOM

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Introduction:

India being an agricultural country blessed with a wide range of agro climatic conditions from tropical to temperate zone. The country occupies 3rd in world agriculture production and contributes 7.68 percent of total global agricultural output which is much higher than world's average (6.1%) in 2017(statistics times). The agriculture sector employs nearly half of the workforce in the country. However, it contributes to 17.5% of the GDP (at current prices in 2015-16). One of the notable developments in the Indian agriculture is the spices crops which are not a major item in India's export basket but it is the source of livelihood for millions of small and marginal farmers and provides employment for millions of workers.

Out of the total area of agricultural land in India, 2.5 million hectares of is used under spices cultivation but the majority of Indian species cultivation is undertaken in very small holdings, often on hilly tracts of land etc. It is estimated that 2.5 to 3.0 million small holders cultivate one or more spices either for self consumption or for sale. The country produces around 2.5 million tones of spices and the notable factor here is that the available varied agro-climatic condition, enumerate varieties, cultivators cultivable for different environment, domestic market and high use in food and medicine prevailing here are suitable for production of spices.

India is rightly known as spices bowl of the world. The spices are produced in almost all the states and union territories of the country. Deferent states are known for deferent varieties of spices production especially, Andhra Pradesh is known for ginger, turmeric, chilli and mustard, Gujarat for cumin, dill seeds, fenugreek, fennel, chilli and garlic. Himachal Pradesh for ginger, Haryana is known for garlic, Karnataka for pepper, cardamom (small), ginger, chilli, turmeric and garlic, Orissa for ginger, chilli, turmeric and garlic. Kerala is known for pepper, ginger, cardamom (small), turmeric, nutmeg and mace, clove, cambodge, vanilla, cinnamon and cassia.

Due to the intrinsic qualities Indian spices have always enjoyed a premium preference in the international market .Their intrinsic values make them distinctly superior in terms of taste, colour and fragrance which fascinated the westerners on a greater extent. The estimated growth rate for spices demand in the world is around 3.19%, which is a shade above the population growth rate.The countries like USA, Canada, Germany, Japan, Saudi Arabia,

Kuwait, Bahrain and Israel are the main markets for Indian spices. North America (USA and Canada) and Western Europe are the most important regions having the import demand for many of the spices. Mexico continues to be the major importer of cinnamon and cassia while Saudi Arabia, Bahrain, Kuwait and Israel are the major markets for green cardamom, black pepper, ginger and turmeric.

The demands for spices in the world are continuously expanding. The changes in the food habits of the people due to affluence and modern complexities of life, the desire for new flavours, food diversification, increased importance of processed foods and increasing importance of 'ethnic' foods requires various types of spices, spice products and aromatic herbs for its preparations. Developing countries have a significant opportunity to benefit from increasing demand. They are producing and exporting a large variety of spices and its products which are produced in tropical and non-tropical environments. Spices and spices products would be profitable sources of diversification for small farmers in less developed countries.

At the international level, we have near monopoly in spice oils and oleoresins. Indian spices have obtained geographical indicators such as Malabar pepper, Alleppey Green Cardamom, Coorg Green Cardamom and Naga chilli. India is not only the largest producer but also the largest consumer of spices. The major portion of spices of our production i.e., 90 percentage absorbs by our domestic market and only 10% is exported to rest of the countries in the world.

The Spices Board of India has listed 52 spices which are grown in India, among them 25 are commercially important.Statistics Division, Spices Board Cochin (2014) sates that India produces and exports a wide variety of spices and its products throughout the world. Among them top ten spices and spices products are pepper cardamom Chilli, Ginger, Turmeric, Coriander, Cumin, Fenugreek, Nutmeg\mace, Tamarind, Mint products, Spice oil &oleoresin, Curry powder(2014-15) .All these spices contributes 91.97 % of total earnings from spices. Since the subject “spices” is vast under discussion, it is not possible to examine the entire spectrum in detail. Consequently in this study the discussion of spices restricted to the key players who are involved in Indian spices trade i.e., pepper and cardamom.

Pepper is popularly known as one of the earliest known spice crops, being a prominent spice in the spice economy it is rightly called as the “golden vine”. At the international level more than 95 per cent of the global output of black pepper is confined to six nations viz. India, Indonesia, Brazil, Malaysia, Srilanka and Vietnam. Till 1990’s India reigned supreme in production and export of pepper, now it stands second to Indonesia in

production and export of pepper. India contributes 10.8% of total world export share of pepper.

In India, Kerala and Karnataka is the leading producer of black pepper and cardamom. Because of their lucrative prices, black pepper was once called ‘black gold’ and cardamom, the ‘green gold’, and the states were known as ‘the grains of paradise’. Owning black pepper and cardamom plantations is a sign of economic prosperity during the olden days.

The main pepper producing sates in India is Kerala, Karnataka, Tamil Nadu and Andaman and Nicobar Islands to a greater extent and the states like Assam, West Bengal and Andhra Pradesh produces on a limited extent. It must be noted factor that among major the pepper producing states Kerala and Karnataka account for 92% of black pepper production in the country (Ravindra, H et al., 2014) But actually Kerala is the leading pepper producing state in the country and Karnataka is the second largest state in black pepper production.

Likewise another important spice is Cardamom, which enjoyed an enviable commercial value in the global spice market, which is rightly called as “Queen of Spices”. The countries like India, Indonesia, Gautamala, tanzia and Srilanka producing cardamom at a larger extent in the World. Till 1983, India was the world’s largest producer and exporter of cardamom. But towards the end of 1980’s, Guatemala emerged as the leading producer and exporter of Cardamom, with 97 percent share of global export. Now India is the second largest producer with an average production of 11000 to 12000 metric tonnes.

Actually there are two types of cardamom grown in India, viz., small and large. The large cardamom is mainly grown in the states, Nepal, Bhutan and Myanmar and sub-Himalayan ranges of Arunachal Pradesh, part of Nagaland, Sikkim and Darjeeling district of West Bengal. On the other hand small cardamom cultivation is concentrated in the evergreen forests of Western Ghats in South India. Where, Kerala is the major cardamom producing state followed by Karnataka and Tamil Nadu.

So it is clear that both pepper and cardamom is the major spices of Indian export basket and facing similar status in case of production and export.

By understanding the importance of Spices trade and the demand for Indian spices in the international level, from the independence, a large number of initiatives were undertaken by the Government of India in order to develop new technologies for spice processing and packaging and to address agronomic and marketing problems of Indian spices.

In 1951 the Planning Commission brought to the notice of the Ministry of Food and Agriculture, Government of India, that the attention paid to the development of spice crops

and cashewnut, which were very important dollar-earning. Crops of south India, was very inadequate. Accordingly, the Ministry of Food and Agriculture constituted a high-level committee, the "Spices Enquiry Committee", to enquire and obtain basic information needed to study the situation with a view to considering what specific measures were necessary for developing the production and marketing of these cash crops (spices) of immense commercial value.

In September 1961, an independent and a registered Society, called the 'Indian Central Spices and cashewnut Committee' were set up to assist in the improvement, development and marketing of spices and cashewnut. And their by encouraging agricultural, industrial and economic research, and by carrying out propaganda and advisory work were undertaken. One of the most important items of work is, testing and supply of improved varieties of seeds and other planting materials, imparting training to technical persons engaged in research on spices and cashewnut in other parts of the country, and answering growers' enquiries pertaining to the various aspects of cultivation of these crops.

The important development in 1966 is Directorate for Plantation crop was established at Calicut under the guidence of the Department of Agriculture and Cooperation and Ministry of Agriculture, Government of India.Later in 1978 the Directorate was named as the Directorate of Cocoa, Arecanut and Spices Development. The activities of the Directorate include, planning, prepare and implement central and centrally sponsored schemes on the development of spices other than cardamom. Along with this it must monitor and evaluate the implementation of the State Plan programmes on spices and the requirements of spices considering both internal and external demands. It must disseminate results of researches on all spice crops among the state agencies and the spice-growers and also to feedback the problem faced by growers and has collect statistical data on area, production and productivity of different spices for which no official estimates are available. It ascertain the price range of different spices in important markets in India and abroad for dissemination among the spice growers, exporters and user and publish technical bulletins on spices and also to issue the quarterly scientific journal on cultivation, crop management, post-harvest technology and utilization of Indian spices.

In addition to the Directorate, an All-India Spices Development Council was also set up in 1966 to advise Central and State Governments on all matters relating to the development of spices. The Council is also represented by spice growers, traders, exporters, members from both houses of parliament, besides the representatives of different Ministries of the Government of India, including the Planning Commission. The Director, Directorate of

Cocoa, Arecanut and Spices Development, is the Member-Secretary of the Council. The Council normally meets once a year in any of the spice growing and marketing centres of India. It appoints a Standing Committee and ad-hoc Committees to assist in different issues connected with the development of spices in the country.

The Cardamom Board was constituted (under the Ministry of Commerce) on 14 April 1966 according to the provisions contained in the Cardamom Act 1965. This act envisaged all-round development of Elettaria cardamomum (small cardamom) in the country through the Cardamom Board. The main functions of the Cardamom Board are, to promote co-operative efforts among cardamom growers, render financial or other assistance for adopting improved methods of cultivation and processing of cardamom and also for replanting and for extension of cardamom-growing areas, Secondly to provide training in cardamom testing and fix grade standards of cardamom, to improve marketing of cardamom in India and aborad, to collect and publish statistics relating to production and marketing of cardamom etc.

The Central Plantation Crops Research Institute, Kasaragod, Kerala, came into existence in 1970 with the amalgamation of the Central Coconut Research Stations at Kasaragod and Kayangulam, and the Central Arecanut Research Station, Vittal, and its regional stations. The Institute has its headquarters at Kasaragod. It has 5 regional stations, viz. Vittal, Calicut, Kayangulam, Lakshadweep and Goa. The research centres of the Institute are located at Appangala. and Hirehalli in Karnataka, Palode and Peechi in Kerala, Mohitnagar in West Bengal, Kahikuchi in Assam and Sipighat in Andaman Islands. There are 2 elite seed farms at Kidu (Karnataka) for producing genetically superior planting material of coconut., arecanut and cocoa, and at $hantigodu (Karnataka) for ovaluation and multiplication of high-productivitying cashew.The Institute conducts research on plantation crops including coconut, arecanut, cashew, cocoa, oilpalm, pepper, cardamom, ginger, turmeric and tree spices; tea, coffee and rubber being the exceptions.

The All-India Co-ordinated Spices and Cashewnut Improvement Project (AICSCIP), was set up in December 1970, actually this project was tarted functioning in 1971 with 10 co-ordinating centres and a main centre at the CPCRI, Kasaragod, Kerala, There was no agency in the country to co-ordinate research on cashewnut and spices till then, and only scattered attempts were made on varietal collection, hybridization and manurial trials under ad-hoc research schemes.

In 1986 Indian government passed Spices Cess Act, According to this Act, cess would be imposed on all spices which are exported from India. The spices cess shall be applicable throughout India. In the same year National Research Centre for Spices (NRCS) has been

established by merging the Regional Station of the Central Plantation Crops Research Institute (CPCRI) at Pdruvannamuzhi,Calicut (Kerala), and the Cardamom Research Centre, Appangala (Karnataka). The centre will also devote itself to large-Scale multiplication and distribution of pepper varieties with high piperine content using rapid multiplication techniques and tissue culture. The new centre will have a tissue-culture laboratory and pesticide residue laboratory.

The Government of India has recently constituted the Spices Board (1986) under the administrative control of the Ministry of Commerce whereby the Spices Export Promotion Council and the Cardamon Board cease to exist. Their functions and activities have been taken over by the Spices Board. It helps to develop, promote and regulate export of spices. And to assist and encourage studies on improvement of processing, quality techniques of grading and packaging of spices excluding agricultural aspects of spices accept that of cardamom; its cultivation aspect continues to remain under the Ministry of Agriculture. The board will also strive towards stabilization of prices of spice and spices for export. It also provides warehousing facilities for spices abroad.

Another important development in the history of Indian spices trade is the beginning of international pepper exchange under the auspices of IPSTA-ICE. It was inaugurated in the year 1997 at Cochin, Kerala. It is regulated by Markets Commission of India, and functions under a steering committee constituted by the Government of India for the purpose. It is expected that, the exchange would help India to regain the past glory of becoming the centre of the world spice trade (Rosengarten 1969).

At the international level we can find two organizations which is specially for spices development they are International Organization for Standardization (ISO) and International Pepper Community (IPC).

The International Organization for Standardization (ISO) is the specialized international agency for the development of international standards through its 191 technical committees covering different internationally traded commodities. The ISO aims at promoting of development of standardization and related activities in the world with a view to facilitating international exchange of goods and services and to developing co-operation in the sphere of intellectual, scientific, technological and economic activities.

ISO consists of large number of techniqual committee and sub committees; one of the ISO technical committees are IS Off C 34 deals with Agricultural and Food Products. This technical committee has 15 sub-committees dealing with various food commodities' groups such as fruits and vegetables, milk and milk products, meat and meat products, spices,

essential oils etc. The sub-committee ISO/TC 34/SC 7 deals with ‘Spices and Condiments’ for which India has the honour of holding this International (ISO) Secretariat in view of her importance as one of the major spice producing and exporting countries of the world. On behalf of India, Indian Standards Institution, now rechristened as "Bureau of Indian Standards"(BIS), New Delhi is the permanent Secretary of SC7 right from the inception of ISO in 1960-61, while its Chairman is elected at each SC7 meeting which is generally held once in 2 years by rotation in different member-countries.

At the international level, the three leading pepper producing countries i.e, India, Malaysia and Indonesia, formed International Community in March 1972, although its permanent secretariat did not begin functioning until August 1976. Brazil joined the International Community in September 1981. With the members now accounting for almost 98% of the total pepper production, the name of the secretariat has been changed to the International Pepper Community (IPC). The objectives of the Community are: stabilizing pepper prices, ensuring adequate returns to growers and undertaking measures to stimulate import demand for pepper.

In addition to this, the establishment of WTO in 1995 is also influencing the trend and pattern of international Trade. Hence each and every country has to think of the prospects of its trade sector with the rest of the world. Thus the present study attempts to examine the performance of spices trade and the impact of World Trade Organisation agreements and India’s Free Trade agreements on spices trade etc with special emphasis on black pepper and cardamom.

WTO and spices

The WTO is an international Organization, which is actually established a successor of GATT 1947. Though WTO is the successor of GATT, Inclusion of agriculture trade in the GATT-WTO order stands a major deference between them. Along with this the major principles like Most Favoured nations (MFN) and National treatment is provided new trade regime to entire economic spectrum of all developed and developing nations. There have been 28 agreements which embody the results of Uruguay round multilateral trade negotiations. Among them, AOA- Agreement on Agriculture and TRIPS- Trade Related Intellectual Property Rights agreements which are directly related to agriculture.

Agreement on Agriculture

The WTO Agreement on Agriculture established the framework of new rules and disciplines Agriclutural trade in the form of market access, domestic support, and export competition which is also known as the three pillars of AOA. The greatest advance made in the WTO 1994 Agreement with respect to market access for agricultural products was the prohibition of quantitative import restrictions, variable import levies, minimum import prices, discretionary import licensing, nontariff measures maintained through state trading enterprises, voluntary export restraints, and similar border measures other than ordinary customs duties, bound tariff rate(maximum rate), special safeguard provisions.The tariff reductions under which tariffs were reduced by a simple average of 36% with a minimum reduction of 15% per tariff line by 2001 in case of developed and 24% with a minimum 10% tariff line by 2005 in the case of developing countries. However, ceiling binding was not subjected to any reduction commitment.

Thus AOA seeks to gradual elimination of trade distorting measures and policies.It divides support given to agriculture in two categories i.e, Trade distorting and non - trade distorting (or minimal trade distorting). All trade distorting domestic support (subsidies) is placed into 'boxes' depending on their effects on production and trade for instance green box (causing not more than minimal distortion of trade or production), amber (most directly linked to production levels), blue (production-limiting programmes that still distort trade).

To achive equitable share and subsidy code, it is found that there is a need to make provisions more operational, stringent and effective in application of the subsidies hene the provisions of export subsidies is introduced in WTO Agreement. It made the distinction between primary and non primary agricultural products and it is considerably strengthened the disciplines with respect to export subsidies on primary agricultural products. This approach also brings about a reduction in the use of export subsidies in volume and budgetary allocation terms. This provision also includes development of internationally agreed disciplines to govern the provision of export credits, export credit guarantees, or insurance programs and to abide by these disciplines once an agreement has been reached.

Provision AOA and spices

The market access provisions of AOA includes Bound tariff rate, Tarriffication, tariff reduction, access opportunities and safeguard measures like anti dumping , subsidies and countervailing duties and emergency safeguard measures. Among them, the bound tariff rates of the WTO has fixed (minimum and the maximum rates that, the WTO members may

apply). The bound tariff rates provide a ceiling that actual tariff rates cannot exceed it except by negotiation with compensation for affected trading partners. The developing countries were offered to have ceiling binding for all previous unbound tariff lines. Under this India agreed to make adjustment in tariff rates for 3375 commodity groups' for 6-digits of HS (Harmonized System) classification and bound their tariff rates. Out of these 3375 commodity lines 678 commodity lines (about 20 per cent) belong to agriculture sector and the spices crops like clove (0907.00),Nutmeg (0908.10), mace (0908.20), cardamom(0908.30), seeds of coriander(0909.20),seeds of cumin(0909.30), seeds of fennel(0909.50),ginger(0910.10), safroon(0910.20),turmeric (0910.30)and pepper (2403.10) etc are covered by the agricultural schedule of WTO with HS codes.

Article XVIII B of GATT (1994) recognizes that member countries whose economy can only support a lower standard of living and are in the earlier stage of development apply quantitative restrictions (QRs) for balance-of-payment (BOP) position and are free to deviate temporarily from the provisions of the other Articles of this agreement. India allowed maintaining QRs on account of BOP problems; India had quantitative restrictions on 2714 items on BOP ground. Out of these, 800 were agricultural commodities, here also spices is one product which seeks QR where 35 items of spices is restricted to 45.3MT in Dec 2000(DGFT).

According to the AoA, members are required to measure the domestic support to agriculture in terms of total Aggregate Measurement of Support (total AMS), the total AMS means the sum of all non-exempted domestic annual level of support, expressed in monetary term, provided in favour of agricultural producers. Support at both national and sub-national level is to be included in total AMS. The total AMS consists of product specific support, non-product specific support, and equivalent measures/of support. In India, the minimum support price scheme for the main agricultural crops was also introduced, and its coverage was progressively expanded. And the farmers were supported mainly through subsidized inputs, namely fertilizers, seeds, irrigation, electricity, and credit, besides the free general services. On the other hand if we studied the amount of total tax for Indian agriculture has shown a rising trend this indicates that in terms of domestic support i.e., Aggregate Measurement of Support. Indian agriculture is net taxed rather than subsidised. (Ramphul 2010)

An examination of India's export policy shows that export of subsidies of kind listed in AOA which required reduction commitment are not prevalent in India. Also like other developing countries, during the implementation period, India was free to provide subsidies for internal and international transport, freight charges and reduction of export marketing

costs. India is making use of these subsidies in certain schemes of APEDA especially for facilitation of export of fruits, vegetable, rice, wheat and floriculture products. India also provides income tax exemption on profits from agricultural exports under section,80HHC of the Income Tax Act (1961) arid is not a listed subsidy. In 2000, the government decided to phase out these benefits over a period of five years starting, from 2000-2001, making profits completely taxable by 2004-2005.

There are other export incentive schemes like Ex-port Promotion Capital Goods Scheme, Duty Exemption Scheme, Duty Entitlement Pass Book Schemes, Duty Draw Back Scheme, and Assistance to States for Infrastructure Development for Export Market Access Marketing Development Assistance, Meeting Legal Expenses for Trade Related Matters and Town of Export Excellence. But the notable feature here is terms of export subsidies; India is not provided any subsidy to agricultural exporters, which is prohibited by any AoA obligation. The GOI has justified its export support policy under the exemption for developing countries from reduction commitments contained in Article 9.4 of the AoA with respect to export subsidies for reducing the costs o marketing and providing favourable internal transport charges on expert shipments. It implies that to comply with the AoA obligation, India is completely free to undertake any measure to encourage agricultural export zones and air transportation facilities for perishable agricultural commodities.

In case of spices the major land mark is the establishment of spices export promotion council,Coachin in early sixties under the Ministry of Commerce, Government of India, for the development and promotion of export of spices and spice products by conducting market surveys, for participation in exhibitions of national and international levels and for instituting awards top performance in exports and other promotional measures, as a result of which, significant development has been made in spice exports.

The Government of India has recently constituted the Spices Board under the administrative control of the Ministry of Commerce whereby the Spices Export Promotion Council in 1986 which provides many export development and promotions schemes like firstly, infrastructure development schemes where it encourages adoption of hi-tech in spice processing, technology and process up gradation, setting up of house quality control laboratories, providing quality certifications like ISO 22000,SQF 2000, GMP, Traceability, FDA registration etc secondly, the board is also providing trade promotion schemes like sending business sample abroad, printing promotional literature or brochures, packaging development and bar coding registration. Thirdly international fairs and meeting, seminars and exhibitions etc fourthly it provides the spices brands abroad like spice house certificates

(SHC), Indian spice logo, organic certificates etc fifthly encourages for value added products, sixthly market development and finally research and assistance is provided by the spices board of India presently.

SPS measures in Spices Market

The SPS is part of AOA; this concerns the food safety, animal and plant health regulations. The AOA in article XIV requires members to give effect to the SPS measures. These measures are aimed at enforcing health safety regulations on internationally traded goods. If importing country feels that particular imported goods are harmful to human, plant or animal health. It can invoke these provisions to refuse their import from particular country. But these measures should not be arbitrary, unjustifiable, non discriminatory among the countries and protectionist and must be based on sufficient scientific prerequisite and apply them only to the requisites and apply only to required extent.

SPS measures should be based on international standard guidelines or recommendations such as Codex Alimentarius Commission (CAS) for food safety, international office of epizootic for animal health and international plant conservation for plant health etc. The notable factor here is that, the least developed countries have to implement the SPS measures within five years from the date of agreement and other countries should implement within two years.

The food safety measures covers the area of macro cleanliness, microbial loads, mycotoxin and pesticide reduction etc. in case of macro cleanliness ASTA,ESA and may other countries fixes their quality requirement for herbs and spices. According to European Spice Association the limit of extraneous matter of spices is 1% and herbs is 2%. On the other hand the microbial load emphasis on post harvesting handling, storage and drying. It prefer clean rather than cleaned product.

Agreement on Technical Barriers to Trade (TBT)

Most of the mandatory standards mentioned in the TBT agreement fall in the category of SPS measures for agricultural products. Since most of them relate to issue of food safety. However labelling requirements (including nutrition labelling standards) packaging standards example bar codes (the use of biodegradable material etc) fall under the preview of the TBT agreement these standards becoming increasingly important to success in the export trade environmental consideration has drastically altered packaging regulation in many countries.

The other area of concern to exporting developing countries is voluntary standards, which is often set by industries in developed country markets for reasons of their own (mandatory standards enforced by governments normally address health, safety and

environmental issues. By contrast, product standards adopted by industry may be based on perceived quality and price consideration and could be influenced by consumer behavior). Though the agreement tries to overcome this by listing that voluntary standardization should be published at least once every six months it remain to be seen whether industry — enforced voluntary standards can be harmonized, made transparent and integrated with integral standards. There is provision of technical assistance to members (especially developing country) on establishing and developing a standards system. Members are also asked to take into consideration the special needs of developing country members.

Spices, unfortunately, have special packaging needs. Example spices like pepper, which are hygroscopic in nature, require packaging materials that allow them to breathe. On the other hand the turmeric powder, special packaging requirements. Insistence on standard biodegradable packaging material may spoil the character of the spice itself. Spices, by definition, have high volatile oils and it is important for their packaging to be able to preserve these oils.

It will be important for spice producing countries to make effective use of Art 11 (on technical assistance to other members) & 12 (on special and differential treatment) of the TBT agreement.

Labelling requirements could also become a major obstacle for spice producing countries. Meeting a requirement for nutrition labelling may be extremely difficult as a result of the absence of reliable data on nutrition values in spices especially when consumption is low. Voluntary standards could prove to be a major hurdle for spice producing exporting countries. E.g. irradiation - Japan, Germany Voluntary standards on the quality of spices both intrinsic and extrinsic may also be applied in the form of overall business strategies. It is important for spice producing exporting countries to be familiar with both mandatory and voluntary standards to be able to compete in the integral market place.

Implications of TRIPS for Indian Agriculture

The types of Intellectual Property Rights recognized by TRIPS agreement are copyright and related rights (i.e. the rights of performers, producers of sound recordings and broadcasting organizations), trademarks including service marks, geographical indications including appellations of origin, industrial designs, patents, the layout-designs of integrated circuits and undisclosed information including trade secrets and test data. TRIPS agreement demands patent protection for 20 years and must be available for both product and processes, in all fields of technology, in the WTO member countries. The direct relevance to the

Agreement on Trade Related Intellectual Property Rights (TRIPs) spices industry is geographical indications and patents.

Article -22 of GATT enables geographical indication to be registered and protected. These are "indications which identify a good as originating in the territory of a member, or a region or locality in that territory, where a given quality, reputation or other characteristics of the good is essentially attributable to its geographical origin. In general, the agreement asks members to prevent the use of indications that misled consumer about the geographical origin of the goods, any use constituting unfair competition.

The spices producing developing countries need to create the legal framework to obtain the protection provided for in the article 22of GATT. This is particularly urgent for countries with established reputation for their spices in the market with the right legislation; they can convert these designations of origin into brand names for higher price realization. Protection should cover designations of origin and geographical indication. Protection can also be offered by means of a certificate of special character for a spice or spice product possessing special characteristics because of its ingredient or methods of production. Many spices are currently sold under trade names giving geographical indications. Alleppey turmeric, Malabar and Sarawak pepper, Cochin ginger etc. The protection of such names, now possible under the agreement will guarantee an identity or the product and give it a brand appeal However, legislation must ensure that the right to use these names is restricted to traders and processors who are able to maintain both the intrinsic and the extrinsic qualities of the spices. Administrative arrangements still have to be made to restrict the sourcing of raw materials to the geographical regions identified.

The Indian institute of spice research has registered several new varieties of spices to GI of TRIPS that have been released in the past several decades and have been cultivated by the Indian farmers for their high productivitying character. They are Malabar pepper of Kerala, Alleppy and green cardamom from Kerala, coorge green cardamom from Karnataka, Naga mircha from Nagaland, byadgi chilli from Karnataka and gunturu sannam chilli from Andra (Indian institute of spices research kozikode, Kerala).

Trademarks and Spices

Trademarks are a type of industrial policy, protected by IPR. Trademarks provide protection of the owner by ensuring exclusive right to use it to identify goods and services or authorise another to use it in returns for payment. The main aim of it is minimise customer confusion by clearly identifying the origin of a product and maximise consumer satisfaction by quality control.

In India Clove , cinnamon , garlic, ginger chilli , cardamom, Malabar pepper , essential /spice oil; pepper oil, seed/ leaf oil, cardamom oil, coriander oil, clove bud oil , cumin seed oil, eucalyputs oil, fennel oil, anise oil, carom, caynne pepper, clove coriander seeds, cumin, fenugreek are the major spices which is registered under deferent brand names Flavourit, Melam, MDH,Prestine , Colours and dyes, AXIOM TRADING COMPANIES, Eastern,MTR,Ayur , Shakthi And Aachi etc.

Patent and Spices

A patent is the legal right granted by the Government to the patentee with respect to the invention of goods, giving exclusive right to prevent others from performing, without authorisation, the act of making, using, offering for sale, selling or importing that product for the above purpose, subject to his full disclosure of the invention. Where a patent covers a process, the patentee has the exclusive right to exclude others from performing, without his authorisation, the act of using that process, using and offering for sale, selling or importing for those purposes, the product obtained directly by that process in India. It is one of the most popular and strongest forms of IPR, which protects an "invention", which is defined as any new and useful art, process, method or manner of manufacture, machine, apparatus or other article, and any substance produced by manufacture. An invention also includes any new and useful improvement in any of them (Kalpana, 2009).

Indian council for scientific and Industrial Research (CSIR) has registered almost 40 patents related to spices like black pepper, cardamom, turmeric, Nutmeg, Ajowan , Coriander, Cumin and Fenugreek in India and abroad. The DBT&RGCB has two patents in spices, while ICAR, DRDO, IISC, TBGRI, BARC, IIT-Bombay and Bose institute have one patent each. The lists of patent of pepper and cardamom are discussed in the following pharagraph.

In case of black pepper A process for the preparation of dehydrated green pepper (Piper nigruin L.) without using chemicals(CSIR 2005), Primer for developing genotype specific marker in piper nigrum (DBT/RGCB 2005) A process for the preparation of white and black pepper (CSIR 2004) An improved process for the preparation preparing white pepper (CSIR 2002) A process for the preparation of white pepper(Biocon India Ltd. 2001)A process for the preparation of stable green natural colourant from the skin of fresh green pepper barriers.(CSIR 2001)An improved process for the preparation of white pepper from fresh green pepper(CSIR 2000)An improved process for the preparation of white pepper(CSIR 2000) An process for the preparation of dehydrated green pepper without using chemicals(CSIR 1998)An process for the preparation of dehydrated green pepper(CSIR 1998

)A process of preparation of novel anti pyretic herbal durg from the plant andrographics, paniculata, piper nigrum and piper betle.(TBGRI 1998)An improved process for the preparation of enriched spices oleoresin such as turmeric and pepper(CSIR 1994)An improved process for the production of sterilised spices particularly green pepper (CSIR 1993)An improved process for the production ball shaped unwrinkled pepper (CSIR 1991) and An improved process for the preparation of (CSIR 1989) is registered for patent(source: Indian institute of spices research kozikode, Kerala).

Further the cardamom the process for the preparation of smokey odour free large cardamom volatile oil.(CSIR 2005), A process for the preparation of stabilised pink color of freshly harvested large cardamom.(CSIR 2005), Composition for stabilised pink color large cardamom from freshly harvested large cardamom.(CSIR 2004) ,An improved process of the preparation of synergic formulation useful as a cardamom flavour additive(CSIR 2002), An updraft gasifier for use with a large cardamom bed drying system(TERI. 2001), and A process and device for curing green cardamom Individual. 2001 was registered for patent in the concerned years. (Source: Indian institute of spices research kozikode, Kerala).

Present status of production of spices

In 2018, Spices were the world's 656th most traded product, with a total trade of $2.69B. Between 2017 and 2018 the exports of Spices grew by 8.96%,Trade in Spices represent 0.015% of total world trade.

The top exporters of Spices were China ($582M) India ($373M), Netherlands ($197M), Iran ($161M), and Germany ($122M). And the top Importers of Spices were Germany ($156M), Netherlands ($147M), United Kingdom($119M), and Saudi Arabia ($117M) (in 2018).

In 2018 the average tariff for Spices was 11%.The countries with the highest import tariffs for Spices are South Korea(181%), Iran (42.1%), Tunisia (36%), Jamaica (32.2%), and Belize (30.3%). The countries with the lowest tariffs are Hong Kong(0%), Maldives (0%), Singapore(0%), and Switzerland (0%). Another important factor here is that, Spices ranks 954th in the Product Complexity Index (PCI).

. As per ISO, 109 spice items are being cultivated in the world out of which India has listed 52 spices which are grown in India. The states like Rajasthan, Kerala, Andhra Pradesh, Karnataka and Gujarat are predominant in the cultivation of spices. Despite India had a virtual dominance in the spices production, the world spices trade is estimated as 47.9 percent by volume and 42.7 percent by value in 2009-10. During the crop year 2010-11 the country produced about 5350.47 thousand tons from 2940.39 thousand hectares of area under spices.

As far as total area is concern the total area of production of total spices in India is steadily increased from 1882820 Hect in 1985-86 to 3969390 Hect in 2017-18and it is reached its peak 4031700 Hect in 2016-17. The increase in area might be due to the rising demand for spices in general in the international market. India, the legendary land of spices, having natural advantage of spices in respect of the divert field agro-climatic conditions, availability enumerate varieties, cultivators cultivable for different environment, domestic market and high use in food and medicine and commercially cultivates many of the export oriented spices. On the other hand the production of spices is very low in 1987-88 and reached its highest point in 8610810 MT in 2016-17.

The major spices export of India over the past 32years (1985-86 to 2018) has witnessed a tremendous increase both in value and volume. During this period export volumes have increased about mine fold, while export value has increased about 43 fold, in rupee terms. The quantity of export was 82827 MT in quantity and 28199.43 lacks in value 1986-87 and it is increased up to 1028060 MT 2017-18 which is valued up to 1798016.241 lakhs. Among the exporting spices mint products occupied the prime position in spices export contributing 30% of export earnings, followed by chillies 23%, spice oil and oleoresins 14% and pepper 9% the major destination of Indian spice exports in USA followed by EU, Sri lanka, Japan and middle East Countries.

India is not only the largest producer but also the largest consumer of spices. The major portion of spices of our production i.e., 90 percentage absorbs by our domestic market and only 10% is exported to rest of the countries in the world. India imported spices 64964MT quantities with the value of 28199.8 lakhs in 1999-2000 and it was decreased to 44140MT in 2000-01 .and the demand for spices from external sources is increased up to to 1028060 MT in quantity and 1798016241 lakh in value in 2017-18.

After the formation of WTO in 1995, remarkable changes have been taken place in the field of India's international trade. One of the striking features is, India witnessed a remarkable change mainly in the field of agriculture particularly in plantation sector. Spices crops play an important role in the field of earning foreign exchange reserves. Since the inception of WTO it has been observed that trade in spices has become a powerful component in India's international trade.

Considering the export value of spices during 1995-96 (the year in which WTO came into being) and 2012-13, the most important items of Indian spices and spices products export are pepper, chilli, coriander, cardamom (small), ginger, cumin, turmeric, fenugreek, nutmeg and mace, tamarind, curry powders/mix, mint products and spice oil and oleoresins.

Presently India is the global leader in value added products development and export with well developed industrial establishments. The value added forms of spices are mainly spice extractives (essential oils, oleoresins and encapsulated forms), ground spices, curry power, consumer packed spices and organic spices .The export of value added items registering an increasing trends both in quantity and value and growth was significant from 2003-04 onwards value added spices accounts for an impressive share of 50% in the total spices export earnings. The country enjoys a formidable lead in organic spice sector too. But value addition is going to be a greater strength to sustain or increase the spices export.

With the ban on artificial colours in food industry and increasing health awareness, natural's colours and other products from spices attain much importance. Use of curcumin from turmeric has become important in food industry, pharmaceuticals, preservatives and body care. The increasing demand for natural colours can also be exploited in the case of high colour valued Indian parprika. Many of the Indian spices are valued for their medicinal properties. The anti-oxidants property of curcumin , anti-obesity factor from garcinia, bioavailability enhancing property of piperine from pepper, zingiberin from ginger, anti-cholesterol and anti-diabetic property of garlic, onion and fenugreek can also be exploited to brighten the future of Indian spice Industry.

Statement of the problem

Majority of spices of the world originated in the Asiatic tropics, in the latitude belt lying between 250 N and 100 S of Equator, while the other quarters of the globe have produced comparatively few items of spices. Since the agro climatic a condition prevailing in India contributes to produce many types of spices at large quantities so it is rightly called as home land of spices. In the year 2016-17 the productivity of spices at global level is 24368 Kgs/Hectare and in India was 2119.72 Kgs/Hectare.

Due to the changes in the food habits of the people the demand for spices from the world is continuously expanding. Developing countries have a significant opportunity to benefit from this increasing demand. They are producing and exporting a large variety of spices and its products which are produced in tropical and non-tropical environments. Spices and spices products would be profitable sources of diversification for small farmers in less developed countries.

The role of spices in the foreign exchange earnings of India is unquestionable. The country is known to the world as the largest producer, exporter and consumer of spices in the world. Though the share of spice crops in total earnings has made a substantial jump over the

years and continues to play a major role in the total agricultural exports of the country there is a decline of exports in the recent years. Especially during1985-86 the total share of spices export was 2.59% in total agricultural export, spice export fell by 0.74 percent in 2012-13.

India is being the largest consumer of the spices in the world, the major portion of spices of our production i.e., 90 percentage absorbs by our domestic market and only 10% is exported to rest of the countries in the world but Spices consumption is steadily increasing in international market. Though we export only ten percent of our total production it contributes to almost fifty percent of the rest of the world's requirement. It must be noted here that the country exports 1028060MT in 2017-18 and also imports 206205MT into India.

India was a forerunner in the production of key spices, especially pepper, ginger, cardamom (small), turmeric, nutmeg and mace, clove, vanilla, cinnamon and cassia etc. Internationally we have near monopoly in spice like pepper especially Malabar pepper is highly demanded spice, and on the other hand cardamom here the Alleppey Green Cardamom, Coorg Green Cardamom. Further we can observe here that we had the monopoly in trade through the initial phase of the post independence era. Now the sector has already been wrested by many foreign countries, especially Vietnam for black pepper and Gautemala for cardamom,

The Kerala, Karnataka and Tamil Nadu is the leading producing states of black pepper and cardamom small in India, where 90% of the pepper is produced only in the states of Kerala. But when compare the productivity of pepper with major producing countries we can find that the productivity is very low (313 kg/ha) compared to the countries like Thailand (4079 kg/ha) and Malaysia (1955 kg/ha). In Kerala, pepper is grown as a mixed crop on live standards with an average plant density of 560 vines/ ha whereas in Malaysia, it is being grown on dead standards with a density of 5000 vines/ ha. Labour cost which accounts for more than 60 per cent of total variable cost has increased by about 400 per cent in the predominantly spice growing state of Kerala during the last a few decades while the increase was only 47 per cent in Malaysia during the same period. Likewise Cardamom is another commodity in which the country has lost its competitiveness in the international trade because of increased production cost. Guatemala has an advantage over India from cost of cultivation point of view also because of higher productivity and lower wages.

After the establishment of WTO, international market becomes increasingly competitive. It is imperative to enhance the production and productivity and bring down cost of cultivation etc. Though India is the home land of many spices the competitiveness of a product is not only important from export point of view, it is equally important to survive in

the domestic products from the international market into domestic market. In such a scenario, where does an India's spices product stand in the international market? Hence, it is important to analyse the competitiveness of a product in the international market comparing with major suppliers of the world. Along with the price competitiveness of a product in the international market, there is also need to analyze the supply side factors like trend in the area, production, productivity, domestic demand among major suppliers and consumers of a product at domestic and global level before the agreement of WTO (pre reforms), WTO (reforms), and post WTO (post reforms) periods

And there are several challenges are also growing both domestically and in exports pertaining to Food Safety and Food Security. Though many food safety issues can be managed with modern processing technology, some of the serious concerns are the pesticide residues and toxins that cannot be removed once the products are contaminated. In the pre WTO era the exports and imports were mainly based on lot by lot quality considerations, but with stringent trade sanctions working in conjunction with most favored nation principle. During the WTO era there were much of repercussions in the trade scenario in general with trade sanctions manifesting in a concealed form. All the nations including our country were optimistic of favorable leaps in trade, of course with the nostalgia of foreign interferences in imports.

Objectives of the study

Given the above spices scenario in the country to explore in detail the various factors affecting the production and productivity of spices with special emphasis to the factors affecting trading of spices crops, the following objectives have been chosen in the study

1. To study the trend in area, production and productivity of pepper and cardamom.
2. To identify the important determinants of spices production and trade.
3. To study the direction and magnitude of export of these crops since the establishment of WTO.
4. To assess the overall impact of reforms on spices during the post globalization period.

Hypothesis

1. The agreement of WTO does not influence positively on productivity of pepper and cardamom in India.
2. There is no net increase of export earnings from spices in the post WTO period in India.

Methodology

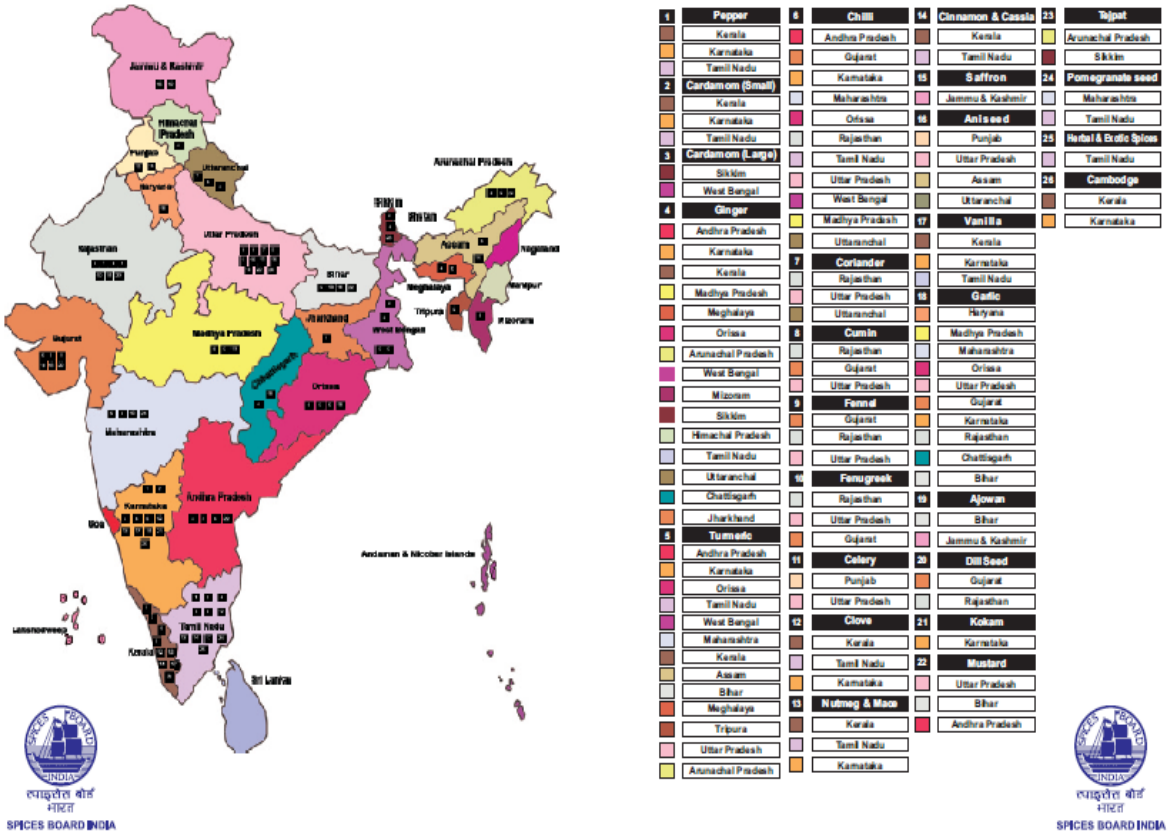
Profile of the Spices production in India:

India is one of the oldest and greatest civilizations of the world. Lying entirely in the northern hemisphere, the mainland extends between latitudes 8°4' and 37°6' north, longitudes 68°7' and 97°25' east and measures about 3,214 km from north to south between the extreme latitudes and about 2,933 km from east to west between the extreme longitudes. It has a land frontier of about 15,200 km. The total length of the coastline of the mainland, Lakshadweep Islands and Andaman & Nicobar Islands is 7,516.6 km. It stretches from the snow-capped Himalayas in the North to sun drenched coastal villages of the South, the humid tropical forests on the south-west coast, the fertile Brahmaputra valley on its East to the Thar Desert in the West. It covers an area of 32,87,263 sq. km. It has achieved all-round socio-economic progress during the last 70 years of its Independence.

India has become self-sufficient in agricultural production and is now the tenth industrialised country in the world and the sixth nation to have gone into outer space to conquer nature for the benefit of the people. As the 7th largest country in the world, India stands apart from the rest of Asia, marked off as it is by mountains and the sea, which give the country a distinct geographical entity. Bounded by the Great Himalayas in the north, it stretches southwards and at the Tropic of Cancer, tapers off into the Indian Ocean between the Bay of Bengal on the east and the Arabian Sea on the west.

In India, spices are produced almost in all the states, moreover different states are known for different spices like; Andhra Pradesh is known for ginger, turmeric, chilli and mustard, Gujarat for cumin, dill seeds, fenugreek, fennel, chilli and garlic. Himachal Pradesh for ginger, Haryana is known for garlic, Karnataka for pepper, cardamom (small), ginger, chilli, turmeric and garlic, Orissa for ginger, chilli, turmeric and garlic. Kerala is known for pepper, ginger, cardamom (small), turmeric, nutmeg and mace, clove, cambodge, vanilla, cinnamon and cassia. One of the important feature must be noted here that, majority of Indian species production is undertaken in very small holdings, often on hilly tracts of land. The spices growing states in India is discussed in the fig 1.1.

Fig 1.1: SPICES GROWING STATES IN INDIA



Source: Spices Board of India.

India is said to be the oldest place where spices, the hilly areas available in India have comparatively low temperatures in summer, so the spices produced in these areas are comparatively of superior quality of superior quality. Hence, from the time immemorial Indian tropics have given spices like pepper, cardamom, chilli, turmeric, ginger, nutmeg, mace, basil, coriander, cassia, mustard, sea same, garlic and tamarind to the world.

Among the available agricultural land, India utilized more than 2.5 million hectares land of total agricultural land is under spices cultivation in India. The states like Rajasthan, Kerala, Andhra Pradesh, Karnataka and Gujarat are predominant in the cultivation of spices. India's population as on 1 March 2001 stood at 1,028 million (532.1 million males and 496.4 million females). India accounts for a meagre 2.4 per cent of the world surface area of 135.79 million sq km. Yet, it supports and sustains a whopping 16.7 per cent of the world population. It is estimated that 2.5 to 3.0 million small holders cultivate one or more spices either for self consumption or for sale.

The Data:

The study is exclusively based on secondary data. The time series data related with spices and spice products of both India and other countries, obtained from official sources have been taken into account.

The data pertaining to objectives of the study were collected from the following sources.

- Spices Board of India, Cochin.
- Directorate of Arecanut and Spices Development, Calicut.
- Indian Institute of Spices Research, Calicut.
- Department of Horticulture Bangalore Karnataka.
- Indian Institute of Spices Research, Appangala, Madikeri.
- Cardamom research Institution Sakaleshpura.
- FAO statistics.
- RBI Hand Book

Period Analysis:

For the purpose of analysing research problem the secondary data will be used from 1984-85 to 2014-15 .these period was divided into three deferent phases like

- Pre WTO (from the year 1984-85 to 1994-95)
- Post WTO part I (from 1995-96 -2004-05)
- Post WTO part II (from 2005-06 to till date or available)

Selection of parameter:

For the purpose of examine the research problem the variables like production productivity and productivity of major spices like pepper and cardamom secondary data will be collected from the five major levels i.e.,

- Area, production and Productivity in World
- Area, production and Productivity in major producing countries
- Area, production and Productivity in India
- Area, production and Productivity in major producing states of Karnataka and Kerala
- Area, production and Productivity in major producing Districts of Karnataka and Kerala

The remaining variables like spices export, price, export directions and import etc is analysed according to the availability of data.

Analysis of data:

Collected data was analyzed by descriptive and inferential statistical methods, the descriptive methods such as Mean, Standard deviation, Median and percentiles were calculated to summarize the data for the pre WTO, and Post WTO part I and part II.

To test significance during study period Kurkshal Wail test was used instead of Annova because, the data in various periods are various parameter like area ,production, productivity, price, export and import etc were not normally distributed Mann Whitneny test is used as a post analysis followed by significant KWT test. Further to test the significant deference between three time period (pre WTO, and Post WTO part I and part II) post holic multiple analysis also performed.

The multiple regression was performed the test relationship in *area, production and productivity* and also to test *export performance and direction of pepper and cardamom*. The regression analysis for dummy independent variable was performed to test the impact of WTO. An equation of the type

$Y=a+bX_1+X_2+X_3+e$

Here

A = constant

bX_1 = coefficient of part I

bX_2 = coefficient of part II represents the rate of change on an average.

Part I = 1 for the duration 1996-2005

= 0 for all the other year

Part II = 1 for the duration 2006-2018(till date or available)

= 0 for all the other year

Pre WTO = base.

Comparison across the years:

To test the year wise effect on consolidation of Tier -1 capital (T1) .i.e., to know that if is there any significant change (increase or decrease) across the years in T-1 capital. Donald B. Keim (1983) suggested a regression model with dummy variables as a method of testing the year wise effect on the variable .Year wise effect or year wise change over the year 2009 to 2014 Regression analysis is given below:

Model: $Ct =a0+a1y1+a2y2+a3y3+a4y4+a5y5+Ut$

Where

Ct is the tier I capital (T1) on year t ai is the mean capital for the year i,y1 to y5 are year dummies that are either 0 or 1 (y1=1 for the year 2010 and 0 other wise, a0 is the mean capital for the year 2009).

Ut is the random error term for the year t

We set up Null Hypothesis as under : H0: a1=a2=a3=a4=a5 i.e. , there is no difference in consolidation of T-1 capital for the different years- 2009 to 2014. If this hypothesis is rejected, it would imply that the mean T-1 capital are significantly different from each other i.e, there is increasing or decreasing trend over the years.

Secondly to identify the factor *influences the production of pepper and cardamom* regression analysis for dummy independent variable was performed to test the impact of WTO. An equation of the type

$Y=a+bX_1+X_2+X_3+e$

Here

Y= production

bX1 = Internal price

bX2=export price

bX3= Area

E= error

Further to examine the effect of group of Independent variable upon the dependent variable Multicollinearity was performed as a part of this study.

Scope of the Study

India, which is rightly called as the land of spices, once had almost exclusive monopoly in the global spices trade. But its dominant position is recently being challenged by the entry of new spice producing and exporting countries. During the post – WTO period, due to the emergence of the global market for spices, competition has become fierce and Indian spice industry is losing ground on various fronts. As a result, India at global level gets relegated to further lower levels and thus losing our big heritage in the field of Spices.

In India, Kerala and Karnataka is the leading producer of black pepper and cardamom. Because of their lucrative prices, black pepper was once called ‘black gold’ and cardamom, the ‘green gold’, and the states were known as ‘the grains of paradise’. Owning black pepper and cardamom plantations, once a sign of economic prosperity of the agricultural families, have now ceased to be so. During the last decade the economics of spices cultivation totally changed. Under the current price situation the black pepper and

cardamom cultivation is neither attractive nor remunerative. Many spices growers are either neglecting or abandoning the pepper and cardamom plants or at least restricting further investment. In most cases new planting is almost ruled out by spices growers.

Hence the study 'Impact of WTO on Indian spices trade with special references to pepper and cardamom' has been undertaken to evaluate the performance of the area ,production, productivity, price, export , export price, export direction and import these spices during pre and post WTO regime.

Organisation of the thesis

For analytical convenience and clear exposition of the results, the present thesis has been organised into six chapters they are,

Chapter I – Introduction

(This chapter highlights the importance of agriculture in Indian economy, history of Indian spice and spices trade, development activities for the promotion and development of Spices production and trade in India and the World, WTO and its policies on spices, present status of spices in the world, the importance of the present study, objectives and hypotheses and limitations of the study)

Chapter II – Review of Literature.

(Comprehensive review of relevant studies was iterated)

Chapter III –Spices sector in India and its significance.

(This chapter examines all the quantitative significance in terms of the area, production, productivity, price movements, export, and import and export direction of spices in general and pepper and cardamom in detail is discussed.)

Chapter IV – Trends in the growth of Area, production and productivity

(Analysed the significance of the collected data i.e, area, production and productivity of spices in deferent levels were calculated by using Mean, Standard deviation, percentile, KWT and post hoc analysis is used and the inferential methods of regression and coefficients will be obtained to indicate their relative importance in the three periods).

Chapter V – Composition and export direction of Pepper and cardamom

(Analysed the statistical significance of the available data on export and export direction and import of pepper and cardamom were analysed by using Mean, Standard deviation, percentile, KWT and post hoc analysis is used and the inferential methods of regression and coefficients will be obtained to indicate their relative importance in the three periods)

Chapter VI- Factor Influeances the production and Trade of Pepper and Cardamom

(Here the factors like price, area, domestic price and export price inter-relationship were checked by using multiple regression analysis)

Chapter VII –Findings of the study, Summary and conclusion.

(Summary and conclusions of the study are presented in this chapter followed by the references that was taken from reports, journals, books etc.)

REVIEW OF LITREATURE

A comprehensive review of literature relevant to the area of research is essential in order to derive intellectual and practical solution to the problem through the application of scientific methods and to understand the work already done in this area. In this part an attempt has been made to review of a few literature and studies from the available literature on various aspects of study area and tries to include all the available literature related to the topic as far as possible.Following is the brief account of review of literature throwing light on above mentioned problem. The available literature is broadly devided into five heads.

- WTO and Indian Agriculture
- Status of Indias' Agricultural Export
- Area and Production of Spices in India
- Marketing and prices of spices
- Multiple Regression Analysis.

After the birth of WTO the multilateral trading system has been undergone huge changes. It is reported that new technology, communication and trade has been transformed very rapidly. And also it plays a crucial role in the global governance, where it established new global trade rules and regulations to monitor the disputes between the nations. Moreover it helps to the developing countries to integrate into the global trading system. By this nowadays it is created a situation that 'it is very difficult to imagine a world without WTO' **(WTO 2015).** The history of the genesis of WTO clarify that, the WTO is born as the successor of GATT and its system can be attributed to the founding principles of reciprocity and non-discrimination. The deferent views economists stated that although the expectation may productivity benefit but theoretical and empirical research in economics questions whether the benefits of these expectations are sufficiently large to out weight the costs **(Meredith A Crowely 2003).** Though WTO is the successor of GATT, impact of GATT commitments on agriculture, from the point of view of India stands to gain rather than lose from trade liberalization by the GATT members. Whereas all developed countries provide

positive support to the cultivators. And in India the product specific and non-product specific AMS was worked out to be negative **(Gulati and Sharma 1994).** India is the world's biggest producer of the agricultural commodities like coconuts, mangoes, bananas, milk and dairy products, cashew nuts, pulses, ginger, turmeric and black pepper etc. But the spices exports have registered a substantial growth during the last five years, and the spices exports include pepper, cardamom, chilli, ginger, tamarind, coriander, cumin seed etc registered an annual growth rate of 21 percent in value and 8 percent in volume in 2010. In order to boost agricultural exports, it is essential to practice good agriculture standard for ensuring that Indian food products are accepted by consumers across the super market in Europe; USA and other developing countries **Sandeep Das (2012).**

The agricultural marketing, prices and international trade under the changed economic environment and the new GATT, the aggregate measurement of support (AMS) and found that, India is at an advantageous position to exportable agricultural commodities like wheat, rice, maize, cotton, jute, tea, coffee, rubber, tobacco, pepper and oil cakes etc among the agricultural commodities mainly the horticultural products like potato, mango and banana, while India is comparatively at a disadvantageous position in international trade of edible oils. Another important factor noticed by the study is India's agriculture is that the Indian agriculture is being taxed rather than being subsidized (**Bhatia 1994).**

The '**Review of Export Performance of Spices of 2012- 13'** stated that though there is a decline trend in total export in the country, Indian spices exports have been able to record strident gain in both volume and value in rupee terms. It must be notable factor that it is the first time in the history of spices exports, that growth in volume registered an all time growth of 22 percent. And also stated that spices exports have registered substantial growth during the last five years registering an annual average growth rate of 20 percent in value and 10 percent in value and India commands a formidable position in the world spice Trade. During 2012- 13 a total of about 699170 tonnes of spices and spice products valued ì 11171. 6 cores in volume and it become US $ 2040.18 million in value. The country has been exported from the country against 575270 tonnes valued ì 9783. 42 crores in volume and US $ 2037. 76 million in value in 2011-12.

Export potential of Indian spices trade explored that the export of spices from the country offered numerous potential. For tapping this potential, some of the major issue need to chalk out they are there is a clear cut export strategy like application of advanced technologies for production, setting up more processing units strengthening of storage and ware house capacity, creating awareness about the benefit of using spices oils and oilresins

etc **Gandi G P (2005).** India had been encountering intensified competition the world market for bulk spices and its ability to compete cost basis is constrained by the relative dynamism of its own domestic market. As a result India's spice export trade is shifting to a range of spice oils, dehydrated products and oleoresins **Steve jaffe (2004)**

ANALYSIS AND FINDINGS OF THE STUDY

Conceptual clarity of Spices

Spices differ from herbs. Herbs are the subset of spices. They are plants or leafy green plants used for flavouring or garnishing. Encyclopaedia Britannica defined spices and herbs as "flavourful parts of plants used in cooking and beverage production to season food and drink. Spices such as cinnamon, cloves, and ginger originated in tropical or sub tropical regions; herbs such as rosemary, marjoram and thyme are native to the temperate zones: Spices seeds such as caraway, anise and fennel grow in tropical or temperate climate."

AREA AND PRODUCTION OF SPICES

The area of world production of spices increasing steadily it was minimum in 1999.-91 (573836 hct)and 2000-01(595578hct) and it was reached maximum in the year 2016-17 by 1152003 hct. Whereas the production of the world spices increases significantly 706465 MT in 1984-85 and reached 2807229 MT in 2016-17. And in case of yield of spices production we can observe that 9487Kgs/Hect in 1986-87 and reached maximum in 2016-17 by 24368Kgs/Hect.

The spices area of production is improved steadily from 1882820 hectare in 1985-86, and it is reached up to 4031700 but we can also see that only in 2017-18 it faces a short downtrend to 3969392. On the other hand production and yield is also showed an increasing trend from1821060MT in 1985-86 and reaches its peak in 4031700MT, 2016-17.simillarly productivity was 967.20 Kg for per acare in 1985 and reached to 2135.78 in 2016-17. The increase in area might be due to the rising demand for spices in general in the international market. The increase in production and productivity could be attributed to the advanced technological interventions.

Likewise the area, production and productivity of pepper and cardamom also analysed in the study and the multiple regression analysis for dummy independent variable was performed to test the impact of WTO.

Findings of objective 1: To study the trend in area, production and productivity of pepper and cardamom.

- During part I and part II of post WTO period the area, production and productivity of spices production in the ***world*** in general increased by 49.5 percent in area 80.7 percent in production and 89.1 percent in the productivity of spices.

  This may be because of establishment of WTO and global trade rules, which helps to monitor the trade among the nations. And also helps the developing countries to integrate into the global trading system. The new technology, communication and trade have been transformed rapidly.

- In ***India*** the area under spices production is increased by 73.4 %, production was by 80.7% and productivity by 84.4%.

  Among the major spices producing states of India the Andaman and Nicobar , Andra Pradesha , Arunachal Pradesh ,Assam , Haryana , Himachal Pradesh , Jammu and Kashmira , Karnataka ,Madyapradesha , Panjab ,Uttarapradesha and West Bengol resulted with increased trend in the area, production and productivity of spices.And it is decreased in the staes of Gujarath and Bihar. But in case of kerala the result shows increasing up to I part of WTO and decreased in the second part.

In India there had been substantially an upward trend as regards area, production and productivity of spices, mainly because the country is geographically and climatically suitable for spices production. A lot of research was conducted in the country which resulted in the evolvement of high productivitying, high quality and pest and disease tolerant /resistant varieties in many of the spices. Alongside newer advanced agro techniques were also standardized along with the post harvest technology, which is also resulted in innovative methods of processing and packaging of spices hence the major producing states are slowly emerging as a significant contributor to the spices production in the country..

Findings in the production of Pepper

- ***The pepper production in the world*** was increased on all three parameter during the pre and post WTO, where 74.0 percent of the area, by 75.3 percent of the productivity and finally by 75.3 percent on productivity of the production.
- And in the ***Major Pepper Producing Countries*** like India, Indonesia, Srilanka, Brazil, Malasia and Vietnam is studied, where we can observe that, among the major producing countries only the India and Srilanka resulted with increased trend on all the three parameters.

- In ***India and its Major producing states of Karnataka and Kerala***, we can observe that, the area of pepper production at the national level found negative and in the states of Kerala and Karnataka resulted with increasing trend.

  And in production, at the national level we obseve positive growth but in the states only in Karnataka it is increased both the phases of WTO but Kerala experienced decreasing trends in the II part of WTO.

  In case of productivity, at the national level shows highly positive growth with 62.2 percent.

  Here we should note that the hypothesis of the study i.e, The agreement of WTO does not influence positively on productivity of pepper and cardamom in India. In case of pepper hypothesis is rejected by test results (5% level of significance).

  But in the major producing states we can found ups and downs where Karnataka was decreased in the first phase of WTO and in Kerala we can observe it was decreased in the second phase of WTO.

- Among the ***Major Producing Districts of Karnataka*** especially chikamagaluru, Dakshina Kannada, Hassana, Kodagu, Uttara kannda, and shivamogga we can observe that only on the area of production of pepper expect shivamogga increased significantly but the production and productivity experienced negative trends in all the districts.

- Among the ***Major Producing Districts of Kerala***, i.e Kannur, Kottayam, kozikode, Kollam, Malapuram, and Iddukki districts we comparatively observe all the three parameter in post WTO. We can also observe that in Iddukki, Kozikode and area and production shows decreased trend but the productivity is considerably increased.

From the various studies and literature review we can list out the reason for the erratic trend in the productivity of pepper in Kerala and Karnataka is mainly due to decrease in area and productivity of pepper and due to incidence of phytophthora foot rot, slow wilt and pest attacks in that period Soumya *et al.* (2014) and Jayesh (2001).

Another reason for low productivity is that majority of pepper farmers are considering pepper only as a secondary crop. It means that it is cultivated as a mixed crop in arecanut or coconut gardens. Hence the attention must be given to the primary crop. This mixed cropping system leads to another serious problem. Pepper vines used to grow with the support of these

live steads (climbers). Therefore whatever manure is applied to pepper plant was squeezed by these live steads.

Further the continuous cultivation of poor productivitying vines, existence of senile and unproductive vines, loss due to pests, diseases and drought also kept productivity of black pepper at its low level. Significant negative growth in the productivity of black pepper during last decade indicates that there is need for better management and technological advancement in order to increase the productivity of black pepper. Poor productivity may turn out to be uncompetitive in the world market.

Recently we can also observed that growers are facing problems such as heavy rainfall, labour scarcity, lack of finance, scarcity of water resources, no integrated pest management system, high cost of organic farming. The growers facing problems in climate that leads to low productivity of black pepper.

It is also noticed that there is a need of adopting efficient post-harvest management, and encourage of value added products of black pepper. And nowadays the black pepper value added products are good in demand in international market.

Findings in the production of Cardamom

- The area and the production of cardamom in the ***World*** were increased considerabily during the study period but productivity of cardamom in the world resulted with decreasing trend by 54.7%.
- And in the ***Major Cardamom Producing Countries*** like Indonesia and Gautamela ,India , Srilanka and Tanzania, it is clear that among these major producing countries only Gautamala shows increased trends in all the three parameters, but the countries like srilanka, Tanzia shows positive increments only in the productivity of cardamom. But India had experienced positive raise in first phase of WTO whereas in second phase it showed decreasing trend in the productivity of cardamom.
- In ***India and its Major producing states of Karnataka and Kerala***, we can observe that, the area of production at the national level was negative and production was positive in all the phases.But the productivity of cardamom was found positive in all the phases of the study period by 65.5%.

Here we should note that the hypothesis of the study i.e, The agreement of WTO does not influence positively on productivity of pepper and cardamom in India. In case of Cardamom hypothesis is rejected by test results (5% level of significance).

The area and the production of cardamom in Karnataka were decreased but the productivity but were positive in first two phases and negative in the second phases of post WTO. But in Kerala the area under production was decreased slowly but production and productivity was increased considerably during the study period.

- Among the ***Major Producing Cardamom Districts of Karnataka*** we can understand that the area, production and productivity of cardamom only in hassana were increased.
- The area of production of the cardamom in the ***Major Districts of Kerala***, we can find that no districts enjoyed increasing trend in all the three parameters. But if we read only the productivity of cardamom the districts Idukki (50.4) and Wyanad (49.4) is increased considerably and the district of Pallakkad is also increased in part II of WTO agreement.

From the various studies and literature review we can state that, erratic trend in the productivity of cardamom in India and the major producing states of Kerala and Karnataka, in case of area of production is due to the lack of cardamom registration certificate with the farmer.

The productivity is decreased mainly due to the incidence of Kattee and Azhukal diseases of Cardamom pests attacking cardamom crops.

And the cultivation cardamom is fully climate dependant and favourable tropical condition with warm humid weather favours most of the disease and pest development. In many cases, effective control measures are available. But timely plant protection measure is very crucial which seems to be hindered by non-availability of plant protection chemicals, non- availability of credit and all the more influenced by the highly fluctuating market price of the produce. In certain areas, strengthening of extension system also deserves immediate attention

Findings of the Objective 2:

To identify the important determinants of spices production and trade

- The determinants of the pepper i.e, area, domestic price and export price pepper influences on its production in three deferent periods significantly, that is by 76% in pre WTO, 41 percent in post WTO and 74 percent in post WTO part II impacted respectively.

Among the deferent determinants the parameter domestic price was negative impacted on production of pepper in the pre WTO and it was positive after the establishment of WTO.

And the export price was positively impacted on the production of pepper till the I phase of WTO but in the second phase we can see the negative impact on the production of pepper.

Whereas the area of pepper shows significant and positive in the pre WTO period and it was negative in part I of WTO and it was again positive in phase II of the WTO.

- On the other hand the area, domestic price and export price of cardamom production in three deferent periods influences the production of cardamom was by 56.2 % in pre WTO, 13.4 percent in post WTO and 15.7 percent in post WTO part II respectively.

Among the deferent determinants the parameter *domestic price* was negatively impacted on the production of cardamom all the phases of study period. And the *export price* was positive and increased in all the phases of study period.Whereas the *area* of cardamom shows significant and positive in the pre WTO period and it was negative in part I of WTO and it was again positive in phase II of the WTO.

Internal and external price movements

- The Internal price of pepper was significantly increased by 203.631 RS in part I further in part II it was significantly increased by 451.574RS ($p=0.00‹0.01$), and the WTO agreements were positively impacted by 50.7 percent of the prices of pepper.

  The price of cardamom was increased by 83.188 RS in part I, and it was further increased by 301.003RS part II. Further the agreements were positively impacted by 50.7 percent of the prices of cardamom.
- At the international level the export prices of pepper were positively impacted from the agreements of WTO by 47.5 percent and the export prices of cardamom was positively impacted from the agreements of WTO by 59.9 percent
- With regards to price trend internal and international prices of both Pepper and Cardamom a general rise in prices markets was observed and statistically it was found to be significant.

Findings of Objective 3:

To study the direction and magnitude of export of these crops since the establishment of WTO

Spices Export

- The export of total spices from India, both in terms of the quantity and also the value of export of spices positively and significantly increased by 72.8% and 59.7% respectively.

  Here we should note that the hypothesis of the study i.e, export earnings from spices trade is not significantly increased in the post WTO period is rejected from the test result at 5% level of significance.

- The regression equation of these major items of export of spies i.e., pepper, cardamom(L), cardamom(S), chilli, turmeric, ginger, coriander, cumin, celery, fennel, fenugreek, garlic, nutmeg, curry powder, mint and oil and oleoresins we can observe that all the spices were positively impacted by the agreement of WTO in both the parameter i.e, value and quantity. But only cardamom (L) was showed the negative impact in quantity but value showed positive impact.

From the aforesaid discussion one can understand that, India's total spices exports have increased much both in terms of quantity and value during the WTO regime. This increase in the growth of export is not uniform for all spices and in all periods. But growth in the export is also an indication of domestic supply and foreign demand for the commodity and there by export performance.The growths of exports of many items of spices during the WTO period are more encouraging. Comparing with the aggregate agricultural export one can understand that, positive trends in the growth rate of many spices are encouraging.

Unlike many of the other agricultural products, spices export is affected much by many factors which not only affect the domestic demand at supply level but also the international demand. The new world trade scenario with the establishment of WTO, has affected Indian spices export considerably. Considering the growth of export, trend we can conclude that the overall performance of spices exports during the WTO regime is satisfactory. But there is a decrease in market share of spices export during the WTO period. It reflects that, the favorable conditions in the international market are not exploited by India. Hence, the country should find out ways by which we can make use of the international trade situation more favorably with respect to the spices exports.

Pepper Export

- The total quantity of export of pepper from India was negatively impacted from the agreements of WTO by 26.3 percent whereas the value of export of pepper was positively impacted from the agreements of WTO by 35.1 percent.

- Among the major exporting country of pepper from India we can found that UK, Japan, South Africa , Belgium, Israel , Singapore And Sweden shows positive and high demand for both in the quantity and value of pepper export from India, Where as Russia and Poland negative and lesser demand in both the parameter. On the other hand the country like USA, Germany, Italy, UAE, France, Saudi Arabia positive impact in the Quantity of export and in case of the country Australia(part i is negative), Canada, Netherlands, Spain(part ii was negative). Whereas USA, Germany, Italy, Australia, Canada, France, Netherland, Spain, showed positive in value of export and the UAE, and Saudi Arabia shows negative part I and positive in the part II of WTO.
- Further the export prices of pepper were positively impacted from the agreements of WTO by 47.5 percent.

The negative trend in the quantity of export of pepper from India after WTO period may be because of increasing in number of players and price. This suggests that WTO agreements have improved the transmission of price signals among various markets within the country as well as between the domestic and the international markets. Therefore, for maintaining and upgrading the competitive advantage in pepper trade, suitable policy supportive measures can be devised and implemented as a long term strategy with regard to pepper production and export from the country.

The positive growth in the value of pepper export indicates that the pepper which is produced in India has its own quality standards in international market, though the cost of production and price is comparatively high from other pepper developing country the Indian pepper was demanded in international market at a greater extent.

Cardamom Export

- The quantity of export of cardamom was impacted from the agreements of WTO by 37.2 percent, however during first phase it was negative and showed positive in the second part of post WTO. And the value of export of cardamom was positively impacted from the agreements of WTO by 41.3 percent.
- With references to thirteen cardamom exporting countries discussed in the study, we can see that the country like Saudi Arabia, UAE, Kuwait, UK, Australia, France, Malaysia, Greece and Germany showed positive impact in both quantity and value. Another notable factor here is no country shows negative impact in both the parameter. On the other hand the USA and South Africa showed positive impacts in

value but in case of quantity it shows negative only in first part of WTO in both the country. Whereas Singapore faces negative impact only in the part I of WTO both in quantity and value. Finally in the country Japan we can found that the quantity and value of export was negative in the II part of the WTO.

- And the export prices of cardamom was positively impacted from the agreements of WTO by 59.9 percent

After the agreement of WTO because of increasing in number of players and price India faced negative impact on the production of cardamom. Where we can observe that the country Guatemala has become the leading producer and exporter of cardamom with 95 percent share and India's share has decreased to less than four per cent. Guatemala has an export-oriented production and offers its products at very low prices. Cardamom is the commodity in which India has lost its competitiveness in international trade over years because of increased production cost. This arises due to two factors, low productivity and higher wages. But Guatemalan cardamom has been able to compete successfully with India in the world market on its quality and flavour. Hence we can observe the positive impacts on value of export of cardamom. And there exists positive relationship between price and cardamom in international market.

Findings of Objective 4:

To assess the overall impact of reforms on spices during the post globalization period

- The WTO agreements have positively impacted both export quantity of spices by 72.8 percent and 59.7 percent of value of export of spices from India

  Whereas the import of spices positively by 6.7 % in quantity and 1.6% in the value of the import of spices into India
- The quantity of export of pepper was impacted from the agreements of WTO and *negatively* by 26.3 percent and the value was *positively* by 35.1 percent **BUT** the pepper import was *positively* impacted by 51.3 percent in quantity and 35.2 percent in value.
- And the quantity of export of cardamom was impacted from the agreements of WTO by 37.2 percent and the value was *positively* by 41.3 percent **BUT** cardamom import was *positively* impacted in both in quantity by 12.6 percent and 8.7 percent of the value.

SUMMARY OF THE ANALYSIS

India experienced upward trend with regards area, production and productivity of spices during and after the establishment of WTO. All the major producing states also showed an increasing trend. This may be possible due to the significant contribution of agricultural research high productivitying, high quality and pest and disease tolerant /resistant varieties in many of the spices. And the post harvest technology also resulted in innovative methods of processing and packaging of spices. When we observe the area, production and productivity of pepper among the major producing countries, India showed positive growth and the major producing states of Kerala and Karnataka also showed an increasing trend. As regards to the area, production and productivity of cardamom among the major producing countries only Gautamala shows positive impact, but India had experienced positive raise in first phase of WTO whereas in second phase it showed reduction in the productivity of cardamom. And among the major producing states only the Kerala experienced positive growth in the production of cardamom.

It observed from the study that there is positive relationship between export price and production of both the crops i.e, pepper and cardamom, the trend can be justifiable , because increased production of black pepper and cardamom in other countries , prices have fallen steeply, while it is not so in India because of the high domestic demand. In a related development, the falling prices of pepper have increased its consumption in developing countries and the demand for pepper is on the rise. The price of these crops has fallen mainly because of the global over supply position.But Indian pepper and cardamom is qualitatively superior and fetches premium prices. India has greater advantage of cashing in all these opportunities by increasing productivity through replantation, focus on organic cultivation and value addition and such increase in productivity will reduce the unit cost of production and further it will improve the price competitiveness.

Though the share of spice crops in total earnings has play a major role in the total agricultural exports of the country there is a decline of exports in volume of spices export from India.But we can observe that after the establishment of WTO there was an inflow of both pepper and cardamom into the country during the post reforms period. And the relationship between the prices of pepper and cardamom in the world and India showed positive with respect to the internal and international quantity of demand. It is very clear that the demand for spices is positively responded to the levels of prices so it is an exception to the law of demand hence we can strongly agree that Spices are undoubtedly a major foreign exchange earner of the country.

RECOMENDATIONS AND CONCLUSION

In India, the initial years of reforms in spices sector witnessed sharp improvement in terms of trade and in the post WTO period remained favorable, but compared to the period before reforms we can find that there is decline in them. This calls for concerted efforts towards evolving an internationally competitive system of production which in turn call for a vibrant innovation system through the coordinated actions.

There is no doubt to state that WTO has opened a new horizon of opportunities for increased access for which domestic production system has to gear itself for deriving maximum benefits. Since our commitments of domestic support are well within the limits, there is ample scope for increasing the support for enhancing our comparative advantage. Indian spices sector continues to need protection and support through creation of infrastructure, watershed development, increased availability of subsidized inputs and greater thrust on research, extension and risk management. Simultaneously, the alternatives to on going product specific support through minimum price support mechanism, may have to be evolved so that the advantage of provisions in the Annexure-2 of AoA can be availed off. And the competitiveness of the Indian Spices have to be enhanced to realise new market access opportunities. The development of product specific regions linked to export channels, tapping the potential of organic farming and development of value addition chain and post harvest infrastructure in tune with global needs will go a long way in establishing India in the international trade scenario.

On the other hand India must insist patent search facility for educational and entrepreneurial networks and centres so that quality of research and education can be competitive, just as a global registry has been proposed for wines under TRIPS, similar global registry must exist for green small innovations too. This will help link innovation, investment and enterprise each vector of which may be in different parts of the world. The global trade regime has to deal with several related issues in regard to biosafety such as ability of the importing country to assess the risks and deal with them, regulations for labelling or GMO products so that consumers can make informed choice, restrict GMOs which may pose hazard to the very viability of the food security, for example, through terminator gene technology, etc. Prior informed consent of farmers must be ensured while pursuing on farm trials on transgenics. The reciprocity in effective protection must exist i.e., (a) those who access farmers varieties must disclose, acknowledge and undertake to provide reasonable share of their revenue with germplasm providers/conservators through appropriate

institutions, and (b) PVP/patent claimant should unambiguously prove that the materials in which improvements have been made, had been obtained lawfully and rightfully. The major contention here that India should not view the challenges posed by WTO as if it will remain always an importing country and that it has no substantive intellectual property to offer to world market.

Apart from this, at the national level we can observe at there is at present an onrush of farmers in all production centres for planting materials to the high prices prevailing in the market. However, good quality planting materials of high productivitying varieties are scarce. And farmers in general have a tendency to plant when prices rule high but forget the crop when prices fall. Majority of the crop in Kerala and Karnataka grows pepper and cardamom as intercrops and majority of them are old senile and unproductive and must be replanted. While new planting is undertaken it must be ensured that shade tolerant high productivitying varieties Farmers need to be educated on scientific crop management practices to ensure better productivity of the crop. And scientific crop management, ensuring prophylactic measures for pest and disease management, promoting good agricultural practices and a more regulated system of planting with standards of uniform height will be helpful in improving overall production and productivity. Proper awareness to farmers on post harvest handling and value addition of pepper also can help them to realise better income from the crop.

The trends of export and import of spices, it is proved that though India is a larger producer of spices, the demand for spices from other countries is also increased. And there is no doubt is there to state as “India is the world’s largest consumer of spices”. Unlike other agricltural commodities spices is a durable farmer can give special preferences on it.And Government and the Spices Boards should take the necessary steps to encourage the production of spices in Particularly the states which are specially known for the production of spies and International demand for it.

All these proposed strategy is aimed at making Indian spices sector not only globally more competitive but also domestically more progressive by using knowledge as a strategic resource so that it will help livelihoods of millions of households dependent upon it in an environmentally sustainable manner.

Limitations of the study

In the social sciences, studies used to face various limitations. So this study is also not free from limitations. The important limitations of this study are:

1. This study is exclusively based on secondary data because of the nature of the study
2. Data are obtained from different sources. So there has been problem of obtaining sufficient homogeneous data from all sources.
3. It is very difficult to obtain homogeneous data of area, production and productivity of Cardamom (from 1985 to 2015) at the world level and major producing countries, the available data which is used in the study is actually includes cardamom, nutmeg and mace.
4. The data obtained from different sources based on different classifications are used for studying different objectives.
5. The study is confined to only major items of spices pepper and cardamom not all spices countries.
6. Even though the analytical models used in this study are widely used methods all over the world for studying this type of problems, they are also not free from limitations.

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